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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/967,305 | 09/28/2001 | Jennifer Richardson | 07334-312001 / MPI2000-31 | 5199 |

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| EXAMINER | |
|---|---|
| DAVIS, MINH TAM B | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1642 | |

DATE MAILED: 08/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/967,305 | RICHARDSON ET AL. | |
| | Examiner | Art Unit | |
| | MINH-TAM DAVIS | 1642 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *29 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *33,34 and 59-79* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *33,34 and 59-79* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. 04/27/05
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Accordingly, claims 33-34, 59-79 are being examined.

The following are the remaining rejections.

## OBJECTION

Claim 72 is objected to because it is drawn to a duplicate of claim 71.

Applicant is advised that should claims 71 and 72 be found allowable, claim 72 will be rejected under 35 U.S.C. 101 as being a duplicate. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to reject the other as being a substantial duplicate of the allowed claim. See MPEP 706.03(k).

## REJECTION UNDER 35 USC 103, NEW REJECTION

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made

to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 33-34, 59-79 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,395,278 B1, in view of US 5,968,737, Sambrook et al, Molecular cloning: A

Laboratory manual, Cold Spring Harbor Laboratories, Cold Spring Harbor, NY, p. 9.47-9.55, and Ramsay G, 1998, Nature Biotech, 16(1): 40-4.

Claims 33-34, 59-79 are drawn to:

1) A method for identifying candidate therapeutic agents for the treatment of prostate cancer, comprising:

a) obtaining a test sample comprising prostate tumor cells,

b) exposing the test sample to a test compound,

c) measuring the level of expression of alpha-methylacyl-CoA racemase mRNA comprising SEQ ID NO:3,

d) identifying the test compound as a candidate therapeutic agent for the treatment of prostate cancer if the level of expression of alpha-methylacyl-CoA racemase mRNA in the test sample exposed to the test compound is less than a control test sample not exposed to the test compound (claim 33).

2) The method of claim 33, wherein step (c) comprising exposing the test sample to a nucleic acid probe consisting of a fragment of the full length complement of SEQ ID NO:3, which hybridizes to SEQ ID NO:3 under the hybridization conditions cited in claim 34 (claim 34).

3) The method of claim 34, wherein the probe consisting of a fragment of the full length complement of SEQ ID NO:3, comprising at least 15, 20, 25, 30, 40, 50, 75, 260, 300, 400, 500, 800, or 900 consecutive nucleotides (claims 59-72).

4) The method of claim 59, wherein the probe or the alpha-methylacyl-CoA racemase mRNA is immobilized on a surface (claims 73-74).

5) The method of claim 33, wherein step (c) comprises amplification of the the alpha-methylacyl-CoA racemase mRNA (claim 75).

6) The method of claim 34 or 59, wherein the probe is detectably labeled with a chemiluminescent label, a fluorescent label, a radioactive label, or a colorimetric label (claims 76-79).

US 6,395,278 B1 teaches a prostate specific polynucleotide of SEQ ID NO:107, a full length cDNA of 1621 nucleotides in length (also referred as F1-12 or P504S) (column 8, lines 14-15, and SEQ ID NO:107 in columns 141-142, bridging columns 143-144). US 6,395,278 B1 also teach that using PCR, the mRNA expression level of F1-12 is found overexpressed in prostate tumors, detectable in normal kidney, but not detectable in all other normal tissues tested, which include prostate (column 46, item under Example 2, especially lines 20-26,and lines 46-51, and column 47, lines 3-5).

In addition, US 6,395,278 B1 teaches that a portion of a sequence complementary to a coding sequence (antisense polynucleotide) could be used to modulate gene expression (column 22, lines 16-33). Further, US 6,395,278 B1 teaches vaccines comprising the described polynucleotides, or a portion thereof, for inhibiting cancer (column 2, lines 28-36, 64-67).

US 6,395,278 B1 further teaches that the polynucleotides may be prepared by screening a microarray of cDNAs for tumor-associated expression, or alternatively by amplification (column 20, lines 31-58). It is noted it is well known that in microarray

technology for screening expression, the probe or the target gene would be immobilized.

Moreover, US 6,395,278 B1 teaches that for hybridization techniques, a partial sequence may be labeled, for example, end-labeling with $P^{32}$, using well known techniques, and referring to Sambrook et al, Molecular Cloning, 1989 (column 20, lines 59-67). US 6,395,278 B1 teaches that spectroscopic methods may be used to detect dyes, luminescent and fluorescent groups (column 38, lines 65-66).

Under MPSRCH sequence similarity search, SEQ ID NO:107 of 1621 nucleotides in length, is 99.9% similar to SEQ ID NO:3, spanning most of SEQ ID NO:3, from nucleotide 26 to the end, nucleotide 1146, of SEQ ID NO:3 (MPSRCH search report, 2005, us-09-967-305-3.olig.rnpb, page 11).

It is noted that US 6,395,278 B1 is the parent case of US20020051977A1, cited in the MPSRCH search report.

US 6,395,278 B1 does not teach a method for identifying candidate therapeutic agents for the treatment of prostate cancer, comprising:

a) obtaining a test sample comprising prostate tumor cells,

b) exposing the test sample to a test compound,

c) measuring the level of expression of alpha-methylacyl-CoA racemase mRNA comprising SEQ ID NO:3,

d) identifying the test compound as a candidate therapeutic agent for the treatment of prostate cancer if the level of expression of alpha-methylacyl-CoA

racemase mRNA in the test sample exposed to the test compound is less than a control test sample not exposed to the test compound.

US 6,395,278 B1 does not teach the specific hybridization conditions cited in claim 34. US 6,395,278 B1 does not teach that the probe of at least 15, 20, 25, 30, 40, 50, 75, 260, 300, 400, 500, 800, or 900 consecutive nucleotides. US 6,395,278 B1 does not teach that the probe could be labeled with a chemiluminescent label, a fluorescent label, or a colorimetric label.

US 5,968,737 teaches screening assays to identify and determine the ability of a candidate antisense molecule to decrease the expression of glutathione-S-transferase gene in cancer cells (column 20, lines 45-51). US 5,968,737 teaches that the method includes the steps of obtaining a cell with glutathione-S-transferase expression, admixing a candidate molecule with the cell, and determine the ability of the candidate to inhibit the content of glutathione-S-transferase (column 20, lines 52-65).

US 5,968,737 further teaches that the antisense sequences may be full length cDNA copies, or large fragments thereof, or may be shorter fragments of 50 or less bases (column 19, lines 44-60). US 5,968,737 also teaches that the nucleic acids sequence are used in combination with a label for determining hybridization, such as radioactive, enzymatic, or colorimetric (column 17, lines 50-63).

Sambrook et al teach various hybridization and wash conditions of radiolabeled probes to immobilized nucleic acids.

Ramsay G teaches microarrays of immobilized DNA or oligonucleotides for detection of expression of genes.

It would have been *prima facia* obvious to a person of ordinary skill in the art at the time the invention was made to screen for candidate antisense polynucleotides of SEQ ID NO:107, a gene that is overexpressed in prostate cancer, as taught by US 6,395,278 B1, using microarray for detection of tumor-associated expression of SEQ ID NO:107, or by amplification, as taught by US 6,395,278 B1.

One would have expected that measuring the mRNA expression level of SEQ ID NO:107, for example by hybridization or by amplification, would also detect the mRNA level of SEQ ID NO:3 of the claimed invention, in view of the extensive homology between the two sequences.

In other words, measuring the level of expression of SEQ ID NO:107 is indistinguishable from measuring the level of expression of SEQ ID NO:3 of the claimed invention.

It would be obvious to apply the method for screening antisense, taught by US 5,968,737 to screen for the candidate antisense of SEQ ID NO:107, because US 5,968,737 teaches more in detailed different steps for screening antisenses, such as obtaining cancer cells that express the gene of interest, determine the ability of the candidate antisense sequences to inhibit the expression of said gene of interest and identify the antisense molecules responsible for the inhibition of the expression of said gene of interest.

It would have been obvious to screen for antisense fragments of SEQ ID NO:107, wherein said fragment could be large or shorter fragments, in view of the teaching of US 5,968,737 that the screeend antisense sequences may be full length

cDNA copies, or large fragments thereof, or may be shorter fragments of 50 or less bases.

It would have been obvious to use the hybridization conditions as recited in claim 34 for screening the antisenses, because they are standard hybridization conditions, in view of the teaching of Sambrook et al.

It would have been obvious to replace the radioactive $P^{32}$ label of the polynucleotide fragments taught by US 6,395,278 B1 with a chemiluminescent label, a fluorescent label, or a colorimetric label, taught by US 6,395,278 B1 5,968,737, because they are standard labels, and would produce the same results.

One would have expected that in the microarray detection of expression SEQ ID NO:107, taught by US 6,395,278 B1, the probe or the target gene is immobilized on a surface, because it is standard techniques used in microarray applications, as taught by Ramsay.

The motivation is to obtain candidate antisense polynucleotides, for potential use in vaccines for inhibiting prostate cancer, in view of the teaching of US 6,395,278 B1 that the vaccines comprising the described polynucleotides, or a portion thereof could be used for inhibiting cancer.

One of ordinary skill in the art would have been motivated to screen for the antisenses with a reasonable expectation of success that the antisenses would be obtained and would be a candidate for vaccines in the treatment of prostate cancer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MINH-TAM DAVIS whose telephone number is 571-272-0830. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JEFFREY SIEW can be reached on 571-272-0787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SUSAN UNGAR, PH.D
PRIMARY EXAMINER

MINH TAM DAVIS

August 11, 2004